

CLAIMS

1. A method of forming a light-weight, fiber-reinforced thermoplastic resin product, comprising;

melting and kneading a molding material, which comprises fiber-containing thermoplastic resin pellets (A) having a fiber content of from 20 to 80 % by weight, the fibers being oriented in parallel with each other and having a length of from 2 to 100 mm, or comprises a mixture of the fiber-containing thermoplastic resin pellets (A) and a thermoplastic resin except (A), the fiber content of the mixture being from 5 to 80 % by weight;

then injecting the melted resin into the cavity of a mold as so closed that the volume of its cavity is smaller than that of the final molded product; and

before or after the resin injection is completed, opening the mold until the volume of its cavity is equal to that of the final molded product.

2. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein the fibers are glass fibers and the fiber content is from 20 to 80 % by weight.

3. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein the fibers are organic fibers and the fiber content is from 5 to 80 % by weight.

4. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein the fibers are carbon fibers and the fiber content is from 5 to 80 % by weight.

5. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein a foaming agent in an amount of from 0.01 to 5 parts by weight, relative to 100 parts by weight of the molding material, is added to the molding material.

6. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in any one of claims 1 to 5, wherein the thermoplastic resin is a polyolefin-based resin optionally containing a polyolefin as modified with an unsaturated carboxylic acid or its derivative.

7. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein, in the step of opening the mold until the volume of its cavity is equal to that of the final molded product before or after the resin injection is completed, the part of the mold cavity except its part for forming the edges of the product is opened.

8. The method of forming a light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 1, wherein, in the step of injecting the melted resin into the cavity of a mold as so closed that the volume of its cavity is smaller than that of the final molded product followed by the

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step of opening the mold until the volume of its cavity is equal to that of the final molded product before or after the resin injection is completed, the resin injection is so attained that the volume of the resin injected is smaller than that of the initial mold cavity, then the mobile part of the mold is once pushed toward the injected resin before and after the resin injection is completed to thereby make the cavity completely filled with the injected resin, and thereafter the mold is opened until the volume of the mold cavity is equal to that of the final molded product.

9. A molded, light-weight, fiber-reinforced thermoplastic resin product having a fiber content of from 5 to 80 % by weight and a porosity of from 10 to 80 %, and having a skin layer with no void on its surface, the fibers existing in the product having a weight-average fiber length of from 1 to 20 mm.

10. The molded, light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 9, which has a relative bending strength of not smaller than 80 MPa.

11. The molded, light-weight, fiber-reinforced thermoplastic resin product as claimed in claim 9 or 10, which is for any of car parts, electric appliances for household use, furniture, and building materials.

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